

What is Claimed is:

1. A moisture curable, hot melt adhesive coating and/or sealant composition comprising:

(a) a first isocyanate-terminated prepolymer comprising the reaction product of an at least essentially semicrystalline hydroxy-functional material and a polyisocyanate;

(b) a second isocyanate-terminated prepolymer comprising the reaction product of an essentially semi-crystalline poly(tetramethylene ether) glycol that has a molecular weight of at least about 1000 and a polyisocyanate; and

(c) a third isocyanate-terminated prepolymer comprising the reaction product of an essentially amorphous hydroxy-functional material and a polyisocyanate, the essentially amorphous hydroxy-functional material having an average functionality less than 2.5 and a $T_g \leq -20^\circ\text{C}$;

wherein all essentially amorphous hydroxy-functional materials in the composition have a $T_g \leq -20^\circ\text{C}$.

2. The moisture curable, hot melt adhesive, coating and/or sealant composition according to claim 1 wherein the at least essentially semicrystalline hydroxy-functional material has an essentially linear, saturated, aliphatic structure.

3. The moisture curable, hot melt adhesive, coating and/or sealant composition according to claim 2 wherein the at least essentially semicrystalline hydroxy-functional material has a crystalline melting point between about 5°C and 120°C and a glass transition temperature less than about 0°C .

4. The moisture curable, hot melt adhesive, coating and/or sealant composition according to claim 3 wherein the at least essentially semicrystalline hydroxy-functional material has a crystalline melting point between about 40°C and 105°C .

5. The moisture curable, hot melt adhesive, coating and/or sealant composition according to claim 1 wherein the at least essentially semicrystalline hydroxy-functional material comprises the reaction product of a diol having from about 2 to 10 methylene groups and a dicarboxylic acid having from about 2 to 10 methylene groups.

6. The moisture curable, hot melt adhesive, coating and/or sealant composition according to claim 5 wherein the diol is selected from the group consisting of ethylene glycol, 1,4-butanediol, 1,5-pentanediol, 1,6-hexanediol, 1,8-octanediol, 1,10-decanediol, 1,4-cyclohexanediol, 1,4-cyclohexanedimethanol, and mixtures thereof.

7. The moisture curable, hot melt adhesive coating and/or sealant composition according to claim 5 wherein the dicarboxylic acid is selected from the group consisting of succinic acid, glutaric acid, adipic acid, sebacic acid, azelaic acid, 1,12-dodecanedioic acid, derivatives thereof, and mixtures thereof.

8. The moisture curable, hot melt adhesive, coating and/or sealant composition according to claim 5, wherein the at least essentially semicrystalline hydroxy-functional material is either polyhexamethylene adipate or polyhexamethylene sebacate or combinations of each.

9. The moisture curable, hot melt adhesive, coating and/or sealant composition according to claim 1 wherein the essentially amorphous hydroxy-functional material has a crystallinity index of less than 0.20.

10. The moisture curable, hot melt adhesive, coating and/or sealant composition according to claim 1 wherein the essentially amorphous hydroxy-functional material is the reaction product of a polyol and a polyacid.

11. The moisture curable, hot melt adhesive, coating and/or sealant composition according to claim 10 wherein the polyol is a polyether polyol, a 1,3 propanediol, a propylene glycol, a butanediol, a hexanediol, a cyclohexanedimethanol a neopentyl glycol or combinations thereof.

12. The moisture curable, hot melt adhesive, coating and/or sealant composition according to claim 11 wherein the polyether polyol is a diethylene glycol, a dipropylene glycol, or combinations thereof.

13. The moisture curable, hot melt adhesive, coating and/or sealant composition according to claim 10 wherein the polyacid is a linear aliphatic dicarboxylic acid, an aromatic dicarboxylic acids, or combinations thereof

5 14. The moisture curable, hot melt adhesive, coating and/or sealant composition according to claim 13 wherein the linear aliphatic dicarboxylic acid is a succinic acid, an adipic acid, a sebacic acid, or combinations thereof.

10 15. The moisture curable, hot melt adhesive, coating and/or sealant composition according to claim 13 wherein the aromatic dicarboxylic acids is an isophthalic acid, an orthophthalic acid, a terephthalic acid, or combinations thereof.

15 16. The moisture curable, hot melt adhesive, coating and/or sealant composition according to claim 1 wherein the essentially amorphous hydroxy-functional material is the reaction product of propylene oxide or butylene oxide capped or copolymerized with ethylene oxide.

20 17. The moisture curable, hot melt adhesive, coating and/or sealant composition according to claim 1 wherein the essentially amorphous hydroxy-functional material has an average functionality of between about 2.0 and about 2.1 inclusive.

25 18. The moisture curable, hot melt adhesive, coating and/or sealant composition according to claim 1, the blend comprising from about 30 to about 60 parts by weight of the first prepolymer, from about 10 to about 40 parts by weight of the second prepolymer, and from about 15 to about 50 parts by weight of the third prepolymer.

30 19. The moisture curable, hot melt adhesive, coating and/or sealant composition according to claim 1, the blend comprising from about 30 to about 50 parts by weight of the first prepolymer, from about 20 to about 35 parts by weight of the second prepolymer, and from about 20 to about 50 parts by weight of the third prepolymer.

20. An article, the article comprising a substrate having a layer of a moisture curable,

hot melt adhesive, coating and/or sealant composition according to claim 1 thereon.

21. A moisture curable, hot melt adhesive coating and/or sealant composition comprising:

5 (a) a first isocyanate-terminated prepolymer comprising the reaction product of an at least essentially semicrystalline hydroxy-functional material and a polyisocyanate;

(b) a second isocyanate-terminated prepolymer comprising the reaction product of a poly(tetramethylene ether) glycol that has a molecular weight of at least about 1000 and a polyisocyanate; and

10 (c) a third isocyanate-terminated prepolymer comprising the reaction product of an essentially amorphous hydroxy-functional material and a polyisocyanate, the essentially amorphous hydroxy-functional material having a number average molecular weight greater than 3000 and a $T_g \leq -20^\circ\text{C}$;

15 wherein all essentially amorphous hydroxy-functional materials in the composition have a $T_g \leq -20^\circ\text{C}$.